

Title (en)

A COMBINATION NONVOLATILE MEMORY USING UNIFIED TECHNOLOGY WITH BYTE, PAGE AND BLOCK WRITE AND SIMULTANEOUS READ AND WRITE OPERATIONS

Title (de)

NICHTFLÜCHTIGER KOMBISPEICHER BASIEREND AUF EINHEITLICHER TECHNOLOGIE MIT BYTE-, PAGE-, UND BLOCK-WRITE SOWIE SIMULTANER LESE- UND SCHREIBFUNKTION

Title (fr)

MEMOIRE NON VOLATILE COMBIMEE FAISANT APPEL A UNE TECHNOLOGIE UNIFIEE AVEC OPERATIONS DE LECTURE ET DE LECTURE ET D'ECRITURE SIMULTANEEES PAR OCTETS, PAR PAGES ET PAR BLOCS

Publication

EP 1561222 A4 20071226 (EN)

Application

EP 03811234 A 20031016

Priority

- US 0332817 W 20031016
- US 42661402 P 20021114
- US 42926102 P 20021125
- US 35117903 A 20030124

Abstract (en)

[origin: US2004027856A1] A combination EEPROM and Flash memory is described containing cells in which the stacked gate transistor of the Flash cell is used in conjunction with a select transistor to form an EEPROM cell. The select transistor is made sufficiently small so as to allow the EEPROM cells to accommodate the bit line pitch of the Flash cell, which facilitates combining the two memories into memory banks containing both cells. The EEPROM cells are erased by byte while the Flash cells are erased by block. The small select transistor has a small channel length and width, which is compensated by increasing gate voltages on the select transistor and pre-charge bitline during CHE program operation.

IPC 1-7

G11C 16/04; **G11C 11/34**; **H01L 21/8238**; **H01L 29/80**; **H01L 29/788**

IPC 8 full level

G11C 16/04 (2006.01); **G11C 16/14** (2006.01); **H01L 21/8247** (2006.01); **H01L 27/115** (2006.01)

CPC (source: EP KR US)

G11C 16/0408 (2013.01 - EP US); **G11C 16/0433** (2013.01 - EP US); **G11C 16/06** (2013.01 - KR); **G11C 16/14** (2013.01 - EP US); **G11C 16/16** (2013.01 - EP KR US); **G11C 16/3445** (2013.01 - EP US); **H10B 41/30** (2023.02 - EP US); **H10B 41/35** (2023.02 - EP US); **H10B 69/00** (2023.02 - EP US); **G11C 16/0416** (2013.01 - EP US); **G11C 2216/18** (2013.01 - EP US); **G11C 2216/22** (2013.01 - EP US)

Citation (search report)

- [X] US 2002089878 A1 20020711 - PARK EUNGJOON [US], et al
- [A] US 6243298 B1 20010605 - LEE HSIAO-LUN [US], et al
- [PA] US 2003161184 A1 20030828 - LEE PETER W [US], et al
- [E] US 2004027856 A1 20040212 - LEE PETER W [US], et al
- [A] WO 02052573 A1 20020704 - KONINKL PHILIPS ELECTRONICS NV [NL]
- See references of WO 2004044917A2

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

DOCDB simple family (publication)

US 2004027856 A1 20040212; **US 6850438 B2 20050201**; AU 2003301938 A1 20040603; AU 2003301938 A8 20040603; EP 1561222 A2 20050810; EP 1561222 A4 20071226; JP 2006517708 A 20060727; JP 4663522 B2 20110406; KR 101088612 B1 20111130; KR 101122917 B1 20120320; KR 20050086588 A 20050830; KR 20100118607 A 20101105; US 2005141298 A1 20050630; US 2005185501 A1 20050825; US 2007076480 A1 20070405; US 2007133341 A1 20070614; US 7149120 B2 20061212; US 7154783 B2 20061226; US 7339824 B2 20080304; US 7349257 B2 20080325; WO 2004044917 A2 20040527; WO 2004044917 A3 20041111

DOCDB simple family (application)

US 35117903 A 20030124; AU 2003301938 A 20031016; EP 03811234 A 20031016; JP 2005507043 A 20031016; KR 20057008535 A 20031016; KR 20107021360 A 20031016; US 0332817 W 20031016; US 1130404 A 20041214; US 1130604 A 20041214; US 63332606 A 20061204; US 63333406 A 20061204